# Is the rigidity of the Spanish regional decentralization system leading to a soft budget constraint?

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**Abstract**

Recent contributions to the literature on public choice have examined the effects of regional fiscal balances and unsuitable decentralization mechanisms on the capability of regional governments to make expenditure decisions. We focus on Spanish regional case. Our results suggest that, given the negative relationship between additional improvements in tax revenue retention rates and the propensity to subsidize, the decentralization of revenues would be a more effective measure. Thus, the enhancement of the autonomous expenditure capacity of regional governments would be a more appropriate policy to adopt.

**Keywords**: decentralization, soft budget constraints, Spanish communities.
**JEL codes**: H71, C33, R58.

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**Spanish regional decentralization tightness: leading to a soft budget constraint?**

## 1. Introduction

Recent contributions to the literature on public choice have examined the effects of regional fiscal balances and unsuitable decentralization mechanisms on the capability of regional governments to make expenditure decisions. As the processes of decentralization have accelerated around the world, so too has the research examining the economic impact of such processes in terms of efficiency, equity and macroeconomic stability (see the survey reported in Rodden, Eskeland and Litvack, 2003). This in turn has engendered a debate on the costs and benefits of decentralization (Prud'homme, 1995; McLure, 1995 and Rodden, 2002, among others). Basically, the benefits of decentralization are argued to derive from the greater pressure on local administrators and the enhanced perception of costs whereas the arguments against decentralization are related to problems of equity, efficiency, migration and administrative complexity.

Yet, eventually, it would appear to be the case that the processes of decentralization are detrimental to the potential growth of developed regions. Recent empirical studies seem to conclude that while decentralization might be beneficial for economic growth in developed countries, the opposite is true in the case of developing regions (Davoodi and Zou, 1998; Akai and Sakata, 2002, among others). Thus, undesirable decentralization mechanisms induce lower growth rates for specific regions. In this way, more developed regions can expect to grow more autonomously with regard to central transfers. Moreover, Bahl and Linn (1992) point out that decentralization becomes more likely with the achievement of a higher stage of economic development. The authors argue that there is a relatively high threshold level of economic development at which fiscal decentralisation becomes attractive.

Thus, unsuitable decentralization mechanisms lead to a situation of soft budget constraints, that is, a scenario in which regional governments have a lower budgetary capacity and in which they are more likely to experience a bailout. Pisauro (2001) notes that in the presence of a soft budget constraint central governments will take action to

solve regional financial difficulties. Therefore, the subsidiarity principle holds to the extent that redistribution and stabilization functions are uppermost in the minds of central governments. However, fiscal co-ordination between the different levels of government is not readily solved for certain specific vertical relations. Yet, in many countries, regional governments enjoy sufficient fiscal autonomy to determine for themselves their final outcomes. On the other hand, fiscal decentralization may itself provide crucial institutional support for market-oriented reforms.

This paper seeks to detect a soft budget constraint operating in the case of Spanish regional governments due to the inadequacy of the current decentralization regime. The presence of a soft budget constraint would limit budget expenditure destinations by means of the central government's decision to decentralize. In such circumstances, the regional authorities would be predisposed to seek the intervention of the central government. The design of intergovernmental fiscal relations should, therefore, address the dual problem of common tax resources and soft budget constraints.

This paper is structured as follows. Section 2 comments briefly on the evolution of the Spanish system of regional decentralization. Section 3, starting from a theoretical model, throws light on the model that would have to be estimated in order to detect the effects of decentralization on regional budgetary capacity. Section 4 shows empirical evidence for Spain's autonomous communities (ACs). The final section draws together the paper's main conclusions.

2.  **A few remarks on Spain's recent process of decentralization**

Spain's process of fiscal decentralization has been conducted asymmetrically since the constitution of the 17 ACs that make up the Spanish state. From the outset, a legal framework was drawn up whereby the ACs were organized into three groups based upon the predisposition of each regional government to assume political responsibilities. Implicitly, historical nationalities were, thus, recognised by Spain's new democratic constitution. However, whereas the Basque Country recovered full legislative (*foral)* rights, as did Navarre, other ACs that had played an equally active role in drafting the constitutional reports were granted only higher legislative rights. Even so, great steps were taken in the process towards decentralization. Indeed, article 158 of the Spanish

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constitution provided for the creation of Interterritorial Compensation Funds (ICF), which would permit funds to be transferred to those ACs that showed levels of economic disequilibrium.[iii]

Therefore, the policy of financing economic differences can be traced back to the Constitution. In addition, ultimately, regional responsibilities were defined by means of a higher ranking law (LOFCA[iv]) and the autonomous statutes of each AC. This system upheld the *foral* communities, which were permitted to operate their pre-established economic agreements (*quota* for the Basque Country and *contribution* for Navarre). These agreements meant that both *foral* ACs would pay for state services performed within their territories. However, the computations for such services have never been undertaken in this way and the system remains unmodified since 1981. In recent years, complex negotiations have taken place in order to bring the size of these budgets up to date since it is the State who has had to bear the brunt of these payments.

However, significant in this respect was the passing of the LOHAPA[v] in 1981. The socialist party sought to harmonize the creation of the new ACs - with only three autonomous statutes having been signed prior to that date - by putting all the ACs on a similar footing within the so-called common regime. This attempt at erasing any initial differences was of transcendental importance. Finally, in 2002 negotiations were initiated in an attempt to reach an agreement on the transfer of the management of health and education services, and this has meant that the powers of the ACs are now practically the same within the common regime. However, at the same time, Spain's devolution of revenue raising powers has lagged behind the rapid decentralization of spending competencies. Therefore, considerable imbalances have sprung up between tax assignments and expenditure functions, leading in turn to the issue of bailouts from the central government. A few ACs have habitually exceeded the 25% limit of debt related to current revenues. López-Laborda and Vallés (2001) summarize the factors that have led to bailouts in Spanish regions.

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[iii] Clearly, those regions that favour regional solidarity support such funds. However, their position is somewhat different when it comes to the same issue in which the regions in Eastern Europe stand to be the future beneficiaries of European Funds.
[iv] Organic Law of the Financing of the ACs.
[v] Organic Law for the Harmonization of the Autonomous Process.

The funds for financing the ACs of the common regime come from local and shared taxes but mainly from funds transferred from the state. These transfers have been calculated in accordance with various formulae since 1986, though the latest agreement seems to be more uniform and understandable. In spite of this favourable evolution in the provision of more resources for the ACs, regional tax capabilities have been conditioned by the regions' own economic evolution and their willingness to establish surcharges on regional tax quotas. However, the international tendency towards diminishing the tax burden does not leave much scope for many individual surcharges. In addition, a regional surcharge would favour the fiscal mobility of economic agents. Therefore, the Spanish decentralization process should eventually set out clearly defined competencies for the various levels of government.

Thus, Spain's system of decentralization would have worsened regional economic growth for those regions that benefit least from a process that enhances the evening out of state transfers. Economists normally think of re-distributive measures from rich to poor in terms of the transfer of income from high- to low-income individuals. Such intergovernmental transfers require a somewhat different justification based on social values (Oates, 1999). Oates also points out that the equalization of intergovernmental grants is bound to have a number of perverse effects. For example, while such grants generally transfer income from the wealthy to the poor, they also inevitably result in some income transfers from poor individuals residing in wealthy jurisdictions to rich individuals living in poor areas. In this sense, such equalizing measures are not as effective as programs that redistribute income from rich to poor individuals.

## 3. Restricted fiscal capability under decentralization choice based upon transfers.

The aim of this paper is to provide evidence that the transfer system forming part of Spain's decentralized state is inadequate to promote decisions as regards subsidization or investment expenditures among the ACs. In this sense, Spain's fiscal decentralization has been given priority over a transfer system of re-distribution, which has led to bailouts and perhaps soft budget constraints at regional levels of government. Given that spending decisions are taken at the regional level and, basically, financed with transfers from the national government, which modifies tax laws, the mechanism of soft budget constraints can be said to be operating under fiscal federalism. The soft budget

constraint will tend to encourage greater expenditure than would otherwise occur, although the division of that expenditure in terms of quantity, quality and price is undetermined.

The concept of the soft budget constraint was first proposed by Kornai (1979, 1980 and 1986) when referring to the firms operating in socialist regimes that were financed by state agencies. A large formal literature on soft budget constraints has developed, much of it evolving from Dewatripont and Maskin (1995). Several partial surveys of this literature have been produced (Maskin, 1996; Dewatripont, Maskin and Roland, 2000; Maskin, 1999; Maskin and Xu, 2001; Roland, 2000).

Finally, the concept has typically been applied in order to explain the dependency generated by federalist models of public choice. Kornai, Maskin and Roland (2003) present a theoretical model. Following Wildasin (2001), regional administrations of limited budgetary size have a reduced capability to promote economic activity inside the region and are, therefore, more closely conditioned by policymaking decisions from central government. Thus, if regional governments pursue fiscal policies that induce bailouts, Wildasin comments that the problem is not that the public sector is too decentralized, but rather that it is too centralized. In this sense, institutional reforms that move the public sector towards a greater centralization may worsen rather than ameliorate the problem of soft budget constraints. However, Qian and Roland (1998) point out that there are destabilization effects that have to be compensated by central government due to the presence of externalities, although they recognise that externalities are also conditioned by smaller budgets. Bordignon (2000) comments that several reforms have been introduced with the aim of progressively tightening budget constraints on regional governments, through an increase in their financial autonomy and a reduction in the transfers paid by the central government.

Starting from the model proposed by Qian and Roland (1998), Timofeev (2002) proposes an alternative model in which it is possible to determine whether the behaviour of the ACs is conditioned by the revenue gains pattern. Suppose we have a public budget that fits the following model:

$$(c - p)M + I = \lambda \tau Y + T \tag{2}$$

where $c$ refers to the unitary cost of the provision of monopolistic goods, $p$ is the price of the monopolistic good and $M$ indicates the consumption level of this good. So, the expression *(c-p)M* could be interpreted as the overall regional government expenditure (*S*). Moreover, the budget is balanced by the percentage ($\lambda$) of total revenue that is generated inside the region, which is eventually included as part of the regional budget plus central government transfers (*T*). In other words, from the total of regional administration resources that are collected regionally ($\tau Y$), where $\tau$ is the tax burden rate and *Y* is the regional output level, only a proportion of this is finally included within the regional budget ($\lambda$), which could be defined as the tax revenue retention rate. However, we believe, in contrast with Timofeev's model, that the regional budget should include an additional variable that takes into consideration the debt (*E*) that temporary regional expenditure decisions might generate without evolving into bailouts. Therefore, expression (2) could be considered as follows, where regional investment expenditures (*I*) must also be considered. All variables are considered in per capita terms.

$$S + I = \lambda \tau Y + T + E \tag{3}$$

Having identified the initial model, Timofeev (2002) proposes computing the elasticity of changes in the per capita amount of regional budget subsidies (note, that here we also consider elasticities regarding investment decisions) for changes in the tax revenue retention rate, variations in the per capita amount of transfers and changes in regional debt decisions. Equation (4) shows these elasticity computations[vi].

$$dS = \gamma_0 d(\lambda) + \gamma_1 d(\tau Y + T) + \gamma_2 d(E)$$
$$dI = \gamma_0 d(\lambda) + \gamma_1 d(\tau Y + T) + \gamma_2 d(E) \tag{4}$$

The first summand identifies the substitution effect, while the second summand reflects the income effect. Finally, the third summand indicates the elasticity of changes in expenditure for changes in the amount of regional debt. In this sense, the tax revenue

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[vi] Andrey Timofeev suggested incorporating debt resources with a separate coefficient.

retention rate would determine the opportunity cost of subsidization and, thus, affect the substitution of local infrastructure expenditure for subsidies.

In the literature, the "flypaper effect" is the name given to the widespread empirical tendency for local government expenditure to expand more strongly when (non-matching) grant income increases than when jurisdictional income per head rises (Oates 1999). In our model, this coincides with the circumstance that $\gamma_0 < 0$ in equation (5). A force underlying the flypaper effect is that of the soft budget constraint stemming from prospective central government bailouts (Pisauro, 2001). This argument is commonly employed by central governments for maintaining central control.

Our static approach is identified in equation (5), where all variables have been defined in per capita terms (represented by small case letters).

$$
\begin{aligned}
\left(s_{jt} - s_{jo}\right) &= \gamma_0\left(\lambda_{jt} - \lambda_{j0}\right) + \gamma_1\left[\tau_0 y_{jo}\Delta\lambda_j + \left(t_{jt} - t_{jo}\right)\right] + \gamma_2\left(e_{jt} - e_{jo}\right) \\
\left(i_{jt} - i_{jo}\right) &= \gamma_0\left(\lambda_{jt} - \lambda_{j0}\right) + \gamma_1\left[\tau_0 y_{jo}\Delta\lambda_j + \left(t_{jt} - t_{jo}\right)\right] + \gamma_2\left(e_{jt} - e_{jo}\right)
\end{aligned}
\tag{5}
$$

## 4. Empirical evidence for the Spanish regions

In our analysis of decentralization in Spain, all the revenue variables were obtained from the budget outlay data. The variables used were considered in real terms. Per capita subsidies include annual current and capital transfers. For the computation of regional tax revenue retentions, we considered the following taxes: personal income tax, VAT, the shared special taxes and the ACs' own taxes. Corporate tax was avoided because of obvious conflicts concerning the registered office of the activity. Per capita transfers refer to the amounts when considering the fourth and seventh budget chapters minus transfers to local corporations managed by ACs and direct transfers from the EU to the AC budgets. The amount of debt was established in accordance with data from Spain's Central Bank. Likewise, the sixth budget chapter (real investment expenditure) was taken as a proxy of the ACs' investment expenditures. The information corresponds to the period 1986-1999.

Below, we describe some of the characteristics of Spain's system of decentralization in order to illustrate its evolution. In order to measure the degree of financial autonomy,

we computed the share of a community's own tax resources as a proportion of the total resources generated in each AC. We depict this degree of autonomy for the period 1992-1999 as this was the most stable period in the development of the AC statutes. Figure 1 shows the rate of growth in the share of the autonomous financing of budgets compared to their initial level in 1992. The *foral* communities have been excluded from the analysis and the Canary Islands appears as an outlier due to their special financing agreement with the central government. It can be seen that three regions have not achieved a high degree of financial autonomy (Andalusia, Extremadura and Castile-la-Mancha), whereas Cantabria, the Balearic Islands and, especially, Madrid have experienced the highest growth rates.

INSERT FIGURE 1 AROUND HERE

Figure 2 shows the evolution in the mean change in tax revenue retention rates versus the changes in per capita amount of central government transfers. A quotient of these magnitudes reflects individual improvements in unconditional resources for the ACs budgets. The results indicate which ACs have obtained the highest transfers from central government (the mean values of each AC) related to their mean changes in the tax revenue retention rate (normalized by overall mean value). Here again, the *foral* communities and the Canary Islands have been excluded. Results indicate that Valencia and La Rioja show the greatest changes in both variables over the average value, whereas Galicia shows the highest increment in transfers per capita level.

INSERT FIGURE 2 AROUND HERE

In order to obtain evidence about the conditionality of AC expenditure decisions, we regressed equation (5) taking control variables into consideration by means of a panel data approach. Selected control variables partially explain the evolution in AC expenditures.

$$ds = \gamma_0 d(\lambda) + \gamma_1 d(\tau y + t) + \gamma_2 d(e) + \gamma_3 X_{it} + \alpha_i \, (\text{or } \alpha_j) + \beta_t + \varepsilon_{it}$$

$$di = \gamma_0 d(\lambda) + \gamma_1 d(\tau y + t) + \gamma_2 d(e) + \gamma_3 X_{it} + \alpha_i \, (\text{or } \alpha_j) + \beta_t + \varepsilon_{it}$$

$$(6)$$

The variable controls considered ($X_{it}$) were as follows: changes in population density, changes in income per capita (measured by GDP per capita), changes in unemployment rates and the changes in the shares of human capital attainment (lowest and highest levels). As mentioned above, our econometric model adopted a panel data approach after controlling for regional effects, where $\alpha_i$ refers to fixed regional effects. In addition, we considered dummies for detecting heterogeneity in budgetary behaviour taking into account fixed regional effects by groups of ACs ($\alpha_j$) depending on their initial willingness to assume competencies from within the constitutional framework (articles 141 and 153 and *foral* regimes). A one-province dummy has also been tested. $\beta_t$ refers to temporal effects (trend variable) and $\varepsilon_{it}$ is the model's error component. The generalized linear-squares method was used with results consistent with heteroskedasticity.

However, there is a problem of endogeneity between dependent variables and the two first regressors, which means that the results of equation (6) above are not consistent. Instrumental variables must be used in order to explain expenditures by means of supply-side and demand-size variables ($Z_t$). We have used the following instrumental variables (correlated with the two main regressors): changes in health index prices, changes in education prices, changes in the transport cost index (the three variables recorded from Inebase), changes in birth rates, changes in mortality rates, changes in occupation in the agricultural sector, changes in labour productivity and changes in migration rates (we have considered only migration between ACs – we did not include foreign migration due to lack of statistical information for the initial years). Bartlett's test results recommend the use of cross-section weights for the two-stage least squares estimation.

$$ds_j = \gamma_0 d(\lambda) + \gamma_1 d(\tau y + t) + \gamma_2 d(e) + \gamma_3 X_{it} + \gamma_4 Z_t + \alpha_i + \beta_t + \varepsilon_{it} \tag{7.1}$$

$$di_j = \gamma_0 d(\lambda) + \gamma_1 d(\tau y + t) + \gamma_2 d(e) + \gamma_3 X_{it} + \gamma_4 Z_t + \alpha_i + \beta_t + \varepsilon_{it} \tag{7.2}$$

Regression results considering changes in per capita subsidies (equation 7.1) are shown in Table 1. Fixed effects results were not significant. Our results demonstrate that the three main regressors in our model might be considered as being significant in explaining the changes in per capita subsidies, albeit that the correlation signs vary. A

positive correlation is recorded in regard to the changes in the amounts of decentralized resources. Therefore, changes in revenue retention rate and the changes in regional debt amounts display a negative correlation sign. Overall, the most important aspect of these results is that a switch from lump-sum grants to tax revenue retention had a statistically significant, negative effect on the amount of budgetary subsidies. Then, owing to the substitution effect, decentralization of the revenue-raising authority reduces subsidization, while the income effect of change in available resources provides evidence of a positive correlation.

INSERT TABLE 1 AROUND HERE

In addition, changes in the unemployment rate, changes in per capita GDP and the trend variable appear to be valid instruments with which to control biased estimates. Indeed, changes in unemployment display a negative correlation whereas the other two control variables are significant and present a positive sign. Thus, the presence of higher unemployment rates leads to lower subsidization per capita expenditure. By contrast, higher development leads towards higher expenditure on subsidies. These results coincide with previous reports that higher development levels lead to higher necessities that must be covered by higher expenditures (Garcia-Milà *et al*, 2002). Finally, the trend variable presents a positive tendency to higher subsidization. However, human capital attainment levels, changes in migration rates and changes in density population show no significant values. As regards dummies for belonging to a particular regime, only the one-province dummy is significant with a negative sign. So, the size of the AC contributes to explaining changes in per capita subsidies.

Finally, we computed the marginal propensity to spend on subsidies according to Timofeev's (2002) proposition. This propensity composes the marginal propensity to spend out of transfers ($\gamma_1$) and the marginal propensity to spend on subsidies out of an equivalent amount of shared taxes ($\gamma_0/\tau Y$), where $\tau Y$ is the tax burden percentage in terms of GDP (we considered the average level for the whole period, taken from OECD revenue statistics).

$$\frac{\gamma_0}{\tau Y} = \frac{-1.456}{33.6} = -0.043 \qquad\qquad \gamma_1 + \frac{\gamma_0}{\tau Y} = 0.154 - 0.043 = 0.111$$

Thus, additional euro expenditure in AC budgets, when both shared taxes and central government grants are available, increases subsidies by 0.111 €. This leads us to conclude that there is a small marginal propensity to spend on subsidies when only transfers from central government (0.154 €) are taken into consideration. Yet, the negative relationship between additional improvements in tax revenue retention rates and the propensity to subsidize suggests that the decentralization of revenues would be more effective. Our model shows therefore the extent of the flypaper effect resulting from the assumption that awarding a grant to a community is equivalent to a grant awarded directly to the regional residents. The reason underlying this is that regional governments could determine autonomously the aggregate size of their budgets. However, our estimate shows a lower value than those recorded in the literature (for a survey of flypaper effect estimates, see Hines and Thaler, 1995).

Likewise, as pointed out in equation (7.2), we also computed the effects of the same exogenous variables with the same instruments on per capita regional investment expenditures (see Table 1, column 2). Again, the fixed effects were not significant. In this case, changes in per capita investment expenditures are brought about following changes in density population, development level and the amount of decentralized resources. The sign of the estimated parameter indicates a positive correlation between ACs investment budgetary decisions, changes in GDP per capita and the resources obtained from central government grants, whereas the other significant results show a negative correlation. Therefore, per capita investment would not be dependent on changes made in fiscal autonomy by means of additional gains in revenue rates. Examination of the dummies for pertaining to a certain regime reveals that the *foral* and 151 communities show significant parameters and a negative sign, albeit that this sign reflects the decomposition of the non-included constant. Yet, lower estimates of the parameters would indicate the greater predisposition of those regions that have in fact assumed lower responsibilities. Therefore, in this case, results do not allow us to conclude that the decentralization of the revenue-raising authority would lead to a reduction in investment due to the non-significance of the estimated parameter.

## 5. Conclusions

Our results suggest that given the negative relationship between additional improvements in tax revenue retention rates and the propensity to subsidize, the decentralization of revenues would be a more effective measure to adopt. In addition, we believe that the expenditure of regional governments should no longer rely on transfers from higher levels of government due to the conditioning characteristics of central government transfers. This belief is supported not only by the small ACs marginal propensities to subsidize (0.153), but, also their propensity to invest (0.063). Political decentralization, or devolution, is about creating a domain of autonomy involving the transfer of power and resources to lower level authorities, which are largely independent of higher levels of government. Though the principle of subsidiarity usually comes into play here, other principles such as proximity to voters need to be taken into account. Yet, subsidiarity should be rejected when unsuitable systems of decentralization conspire to hinder the growth of developed regions and do nothing to promote the development of the more backward regions. Moreover, in any computations of growth, subsidiarity cannot be accurately measured. In this sense, equity provides a better approach, making it more desirable to consider individual incomes of both backward and developed regions.

Spanish decentralization is based upon a framework within which the recognition of national historical rights remains incomplete. This means that political decentralization has yet to be fully achieved. At this point, devolution would be satisfactorily completed if the following factor was taken into consideration: the effective responsibility of regional governments needs to be respected, which in turn would generate the necessary reforms. But until then, Spain's State of Autonomies will continue to lack an institutionalized mechanism of co-operation between the Spanish central government and the autonomous communities. Present negotiations are considering the financing of AC health deficits. The central government prefers to renounce its authority over regional revenue-raising rather than to finance health expenditures in the ACs by means of additional debt. So, soft budget constraints are still in place.

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**Figure 1 Growth in share of the ACs own taxes over the total territorial amount taxes**
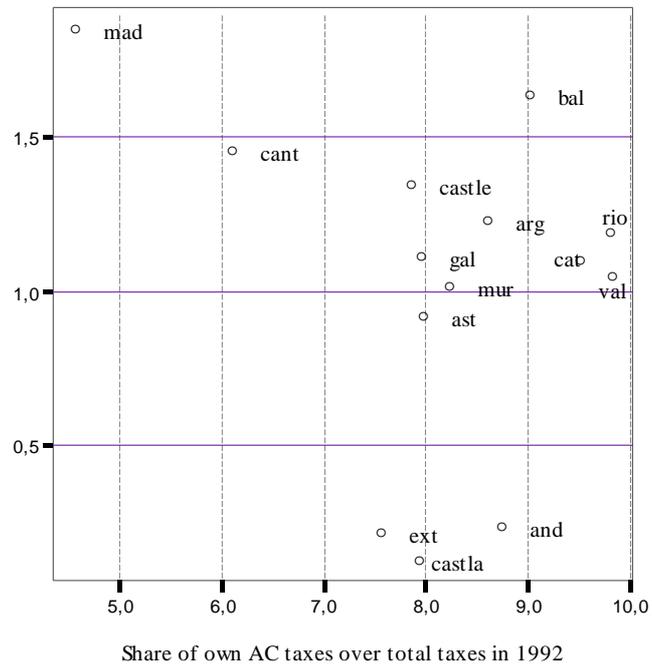


Share of own AC taxes over total taxes in 1992

**Figure 2 Changes over mean: tax revenue retention rate versus per capita transfers**



Changes in tax revenue retention rate over mean value

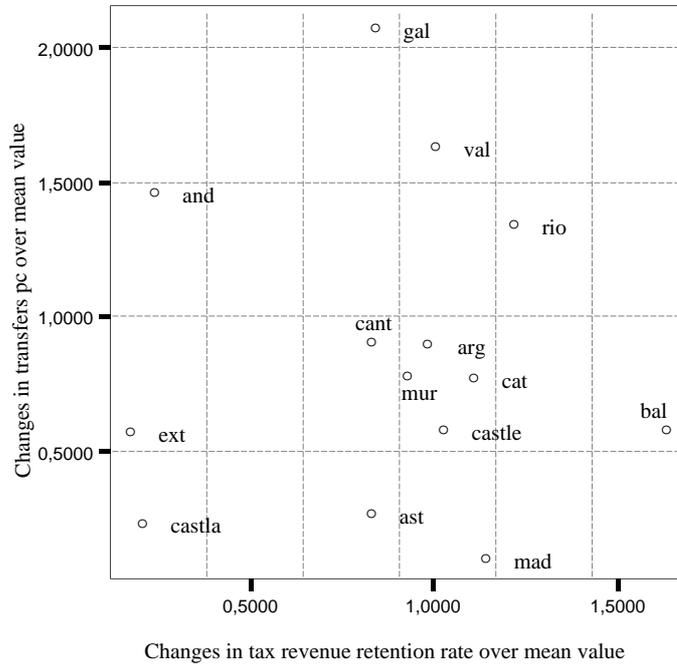**Table 1 Pool data results: 1987-1999**

| Exogenous variables | Changes in per capita subsidies | Changes in per capita investments |
|---|---|---|
| *Change in quota retention rate* | -1.456$^{**}$ (0.154) | -0.281 (0.410) |
| *Changes in the amount of decentralized resources* | 0.154$^{***}$ (0.025) | 0.063$^{***}$ (0.016) |
| *Changes in debt amount resources* | -0.066$^{**}$ (0.029) | -0.004 (0.020) |
| *Changes in population density* | 21.186 (175.193) | -274.836$^{**}$ (130.479) |
| *Changes in unemployment rate* | -21.112$^{*}$ (10.763) | -14.782 (9.184) |
| *Changes in per capita GDP* | 132.409$^{***}$ (32.894) | 131.819$^{***}$ (38.452) |
| *Changes in human capital (lowest attainment level)* | -78.323 (88.913) | -65.696 (77.959) |
| *Changes in human capital (highest attainment level)* | -13.626 (16.301) | -6.277 (10.444) |
| *Changes in migration rates* | -5.315 (3.925) | 2.888 (3.205) |
| *Dummy article 143* | | -5.971 (4.590) |
| *Dummy foral regime* | | -12.396$^{**}$ (5.690) |
| *Dummy article 151* | | -7.864$^{*}$ (4.736) |
| *Dummy uniprovincial level* | -4.706$^{*}$ (2.570) | |
| *Trend variable* | 1.420$^{***}$ (0.319) | -0.143 (0.330) |

$^{*}$, $^{**}$, $^{***}$ Means statistically significant at 10%, 5% and 1%. Standard deviation errors are in brackets.